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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,395	02/13/2004	Kenny Cheng	80034/11049	9005

29471 7590 03/24/2006

MCCRACKEN & FRANK LLP  
200 W. ADAMS STREET  
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CHICAGO, IL 60606

EXAMINER
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ELVE, MARIA ALEXANDRA

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/779,395	CHENG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	M. Alexandra Elve	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-11,13-21,23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-11,13-21,23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                    |                                                                             |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____                                                |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/11/06</u> .                                                             | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5-10, 13-20 & 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grossklaus, Jr. et al. (USPAP 2004/0086635 A1) in view of Gray et al. (USPN 6,387,541).

Grossklaus, Jr. et al. discloses a method of repairing a turbine part (vane, blade, airfoil and so forth) using laser cladding. Hot combustion gases corrode turbine parts. Damaged material is removed, leaving an exposed base metal surface. Base metal restoration is applied by furnishing a structural material, which has the same composition as the base metal, in the form of a powder or wire. These are overlaid on the exposed base metal and then laser clad. Base metal restoration is typically in process machined and final machining to meet desired dimensions, shape and surface finish. Additionally, following the final machining the repaired part may be subjected to a rub coating in the form of a low temperature thermal spray (heat treatment process). (abstract, figures, 0002-0005, 0008-0009, 0011, 0024-0026, 0028-0030, 0037-0038)

Grossklaus, Jr. et al. teaches corrosion from hot combustion gases, but not specifically sulphidation.

Gray et al. discloses a turbine blade, aerofoil, platform and root, which must be protected from oxidation and sulphidation. The protective austenitic stainless steel coating and chromium oxide layer provides protection against high temperature turbine environments, i.e. material loss or degradation due to oxidation and/or corrosion i.e. sulphate attack. (abstract, figures, col. 3, lines 63-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to note that sulphidation, as taught by Gray et al. is essentially the same degradation process as corrosion in Grossklaus, Jr. et al. because they are both degradation processes which render the part in a damaged state.

Claims 2, 11 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grossklaus, Jr. et al. and Gray et al., as stated in the above paragraph and further in view of Goodwater et al. (USPN 6,173,491).

Grossklaus, Jr. et al. and Gray et al. teach the removal of damaged material prior to laser cladding repair, but do not specifically teach the type of removal.

Goodwater et al. teaches the refurbishment of a turbine engine part (vanes, airfoils, platforms and so forth). Platforms are machined, using known machining processes (e.g. contour milling, automated belt sanding, manual belt sanding). Vacuum heat treatments are also performed during the machining, in order to restore the original microstructure. Following this the parts are laser clad. Final machining and coating is

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performed in order to restore the dimensions, surface finish and other critical features.

(abstract, figures, col. 5-6)

It would have been obvious to one of ordinary skill in the art at the time of the invention to use abrasive machining, as taught by Goodwater et al. in the Grossklaus, Jr. et al. and Gray et al. process because these are merely specific methods for removing damaged material.

### ***Response to Arguments***

Applicant's arguments filed 1/3/06 have been fully considered but they are not persuasive. Applicant argues that prior art does not teach multiple heat treatments. The examiner respectfully disagrees because Grossklaus discloses heat overlay and a final low temperature thermal spray, that is, a heat treatment process. Thus there are multiple heat treatments taught by Grossklaus.

Applicant argues that Goodwater does not teach heat treatment, after cladding and removal. The examiner respectfully disagrees. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Alexandra Elve whose telephone number is 571-272-1173. The examiner can normally be reached on 6:30-3:00 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 20, 2006.

A handwritten signature in black ink, appearing to read 'M. Elve', with a long horizontal stroke extending to the right.

M. Alexandra Elve  
Primary Examiner 1725